

Rocker switch has manually operable rocker element for operating first functional position switch elements and drive element for operating second functional position switch elements

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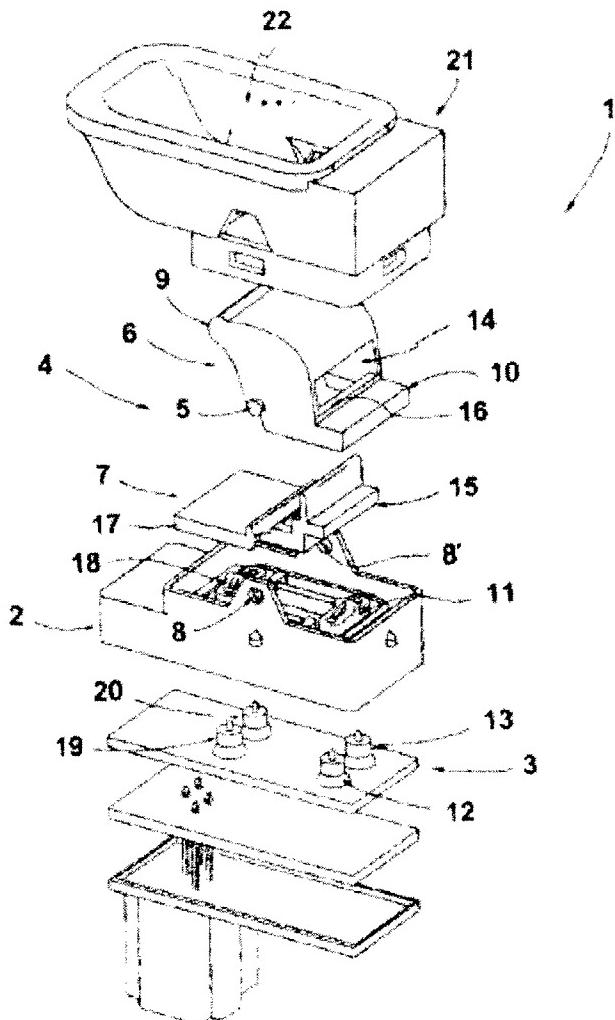
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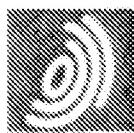
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Abstract of DE10206777

The device has a pivotably mounted switch rocker (4) pivotable into at least first and second functional positions opposite each other relative to a neutral position and in which one or more electrical switch elements (12,13,19,20) are operated. The rocker has a manually operable rocker element (6) for operating the switch element(s) (12,13) of the first functional position and a drive element (7) movable by the rocker element for operating the second functional position's switch element (s) (19,20).



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The invention relates to a rocker switch with a tiltable stored switch jack, which is tiltable on the basis of their neutral position at least into first and second, each other function positions facing concerning the neutral position, in which by the switch jack in each case in or several electrical switch elements actuated become.

Such a rocker switch is for example from DE 198 12 250 A1 well-known. The rocker switch described in this document covers a switch jack, which exhibits one eccentrically to its storage arranged grasp cam, so that actuated by these the switch jack can become with a pressure or a pulling movement. Such switches are designated by it also as Push Pull switches. Such switches are used for example in motor vehicles for operation of the window lifter engine and are for this purpose into the arm rest of a door of the motor vehicle integrated. With this before-well-known rocker switch, in order to realize with this a two-stage function position between the actual switch jack and the switching positions a Schaltstück is inserted defining switch elements, in which successively two switch elements of a function position are operable.

From EP 0,610,161 B1 a further rocker switch is well-known, with which under inserting a Schaltstückes as a function of its position of the switch element the one or the other function position are operable. The Schaltstücken of these before-well-known mechanisms it is common that these are stored according to kind of a jack and that in each function position of the switch jack at least the Schaltstück with that rocker arm is removed from its neutral position from the switch elements of the other function position. With an element of such rocker switches as Push Pull switches in the arm rest of a Kraftfahrzeugtüre is desired that during pulling the switch jack to the lifting the spacing of the grasp cam of the tray of the switching hollow becomes larger the same, in order to make available an additional ergonomic feature for a user over the accomplished movement. This causes however a relatively high structure of the rocker switch. Furthermore it is not desired that grip recesses exhibit a movable base.

On the basis of this discussed state of the art the invention the task is the basis to form a rocker switch of the kind initially specified such further that the switch assembly can be out-arranged concerning its height low rise building that and that this rocker switch is suitable in particular for an installation in flat switch hollows.

This task is solved according to invention by the fact that the switch jack covers a manual operated rocker element for operation or the switch elements of the first function position as well as a driver movable by the rocker element for operation at least switch element second, the first function position facing concerning the neutral position, whereby the driver is such connected kinematically with the rocker element that an obligation taking along of the driver takes place out via the rocker element only with a movement of the rocker element to the second function position.

With the stressed rocker switch the switch jack covers a manual operated rocker element and a driver movable of the rocker element. The driver is kinematically coupled to the movement of the rocker element only in a direction of motion of the rocker element, while in the other direction of motion of the rocker element such a obligation taking along is not given. Over the rocker element thus that can become for example a switch element of a function position actuated with the driver, while another, concerning which with the driver function position which can be served for neutral position facing function position can be directly by the rocker element operable and appropriate way is. With an actuation of the rocker element and/or, to the switch jack into that function position, which does not become actuated by inserting the driver, this remains in its neutral position. Only with an actuation of the rocker element for moving the same into the function position which can be served with the driver the driver is induced by the accomplished movement of the rocker element to operation or this function position of assigned switch elements. Thus no area needs to be planned with this rocker switch, which would have to take up itself upward a moving Schaltstück, as this is with the before-well-known state of the art the case. Therefore this rocker switch with smaller height can be constructing out-arranged. In particular this is realizable with very simple compositions.

Such a driver can exhibit a taking along cam, which intervenes in a slide mechanism of the rocker element and rests in the neutral position of the switch jack against a on one side working taking along notice of the guiding for kinematic coupling to a movement of the rocker element for example. The driver is moved by the taking along notice only if the rocker element is moved into that function position, which is to become operated over the driver. With a movement of the rocker element into the other direction the driver remains in its neutral position. In this direction the slide mechanism is not limited by abutment affecting the taking along cam.

In principle the driver does not need to be tiltable stored over trunnions. Rather this can be held between the top side of the switch elements and the lower surface of the rocker element.

Those the function positions of assigned switch elements are for instance switching cathedrals of a switching mat. A resetting of the switch jack takes place appropriate way via utilization of the material elasticity of the switching cathedrals, so that in principle additional resetting elements are not necessary.

In the following the invention is described on the basis an embodiment with reference to the attached figures. Show:

Fig. 1 a three-dimensional schematized opinion according to kind of an explosion representation of a rocker switch,

Fig. 2 a profile by the rocker switch of the Fig. 1 in a first switching position and

Fig. 3 a profile by the rocker switch of the Fig. 1 in a further switching position.

A rocker switch 1 consists essentially of a Einbaugehäuse 2, an electrical contacted switching mat 3 and one altogether with the reference symbol 4 characterized switch jack. The switch jack 4 covers tilttable a rocker element 6 and a driver 7 stored at the Einbaugehäuse 2 by means of trunnion 5. To the tiltable storing of the rocker element the trunnions 5 into in each case a camp opening 8 seize 5 at the bay 2 and/or, 8' of the Einbaugehäuse 2. The switch jack 4 is more operated over the rocker element 6; for this purpose the rocker element 6 has planned grasp cam 9 one eccentrically for the arrangement of the trunnions 5 and thus to the rotary shaft. By the eccentric arrangement of the grasp cam 9 the rocker switch 1 is conceived as so-called Push Pull switch, which is bringable by raising of the grasp cam 9 into a function position and by pressing the grasp cam 9 down into the other function position.

The rocker element 6 has an operating extension 10, which is oppositely arranged the grasp cam 9 concerning the rotary shaft of the rocker element 6. The lower surface of the operating extension serves 11 for operation of an off center stored switching bar, over which again as a function of response pressure exercised over the operating extension 10 on the switching bars 11 one or both switch elements designed as switching cathedrals are operatable 12, 13 of the switching mat 3 of this function position to the closing of the appropriate electrical contacts.

Above the operating extension 10 a guiding 14 is brought in as aperture in the rocker element 6. In the slide mechanism 14 a taking along cam 15 of the driver 7 intervenes. The slide mechanism 14 exhibits under-laterally a taking along notice 16, on which the taking along cam 15 of the taking along element in the neutral position of the rocker switch 1 lies close. The driver 7 extends from the taking along cam 15 up to an operating section 17, whose lower surface is intended for contacting one the second function position of the rocker switch of 1 assigned switching bar 18. Over the switching bars 18 one or both switch elements 19, 20 of the switching mat 3 actuated designed as switching cathedrals can become as a function of the pressure applied over the operating section 17 of the driver 7. The driver 7 is kinematic thereby to a swivelling and/or. Rotary motion of the rocker element 6 such coupled that on the basis of the neutral position with a Push movement this will transfer 7 to the driver, so that the lower surface of its operating section affects 17 the switching bar 18. This kinematic coupling is reached by the fact that the taking along cam 15 against the taking along notice 16 rests and thus the pivoting movement of the rocker element will transfer 6 to the driver 7. The rocker switch 1 is in Fig. 2 in its Push function position represented.

The driver 7 is even held the switching bars for 11, 18 contained element and the rocker element 6 between that. Its lateral slide mechanism experiences the driver 7 by the accordingly pulled up wall of the bay 2.

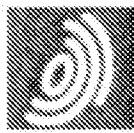
The rocker switch 1 is into a switch screen 21 projecting into a switching hollow 22 laterally assigned. The rocker switch 1 serves with the described embodiment as window lifter switch and is integrated into the arm rest of the Tür of a motor vehicle.

Fig. 3 shows the rocker switch 1 in his Pull Funktionsstellung. In this function position the driver 7 is kinematically not coupled to a movement of the rocker element 6. This kinematic final coupling is the result of a upper-lateral delimitation of the slide mechanism 14 of the rocker element 6 not effective over the amount of throw of the rocker element 6, so that the rocker element 6 into these in Fig. 3 function position shown is tilttable, without letting the driver 7 at this movement part. The driver 7 remains in its neutral position. In the Pull Funktionsstellung become the switching cathedrals 12, 13 over the switching bar 11 actuated, which was lowered again by the operating extension 10 of the rocker element 6. It is substantial in this switching position that the driver 7 remains in its neutral position, so that the rocker switch 1 needs to exhibit neither a large overall height still another movable grip recess.

From the description of the invention it becomes clearly that with simple compositions and in particular without complex mechanics in purchase to take to have a rocker switch was conceived, only the small overall height and in particular only very small and seizing continuous concerning their depth and/or. Switch hollow needs.

Reference symbol list

- 1 rocker switch
- 2 Einbaugehäuse
- 3 switching mat
- 4 trunnions
- 5 rocker element
- 6 drivers
- 8, 8' camp opening
- 9 grasp cam
- 10 operating extension
- 11 switching bar
- 12 switch element
- 13 switch element
- 14 slide mechanism
- 15 driver cam
- 16 taking along notice
- 17 operating section
- 18 switching bars
- 19 switch element
- 20 switch element
- 21 switch screen
- 22 switch hollow

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1. In each case rocker switch with a tiltable stored switch jack (4), those on the basis of their neutral position at least in first and second, each other function positions facing concerning the neutral position is, in those by the switch jack (4) in or several electrical switch elements (12, 13, 19, 20) an actuated becomes tiltable, characterised in that the switch jack (4) a manual operated rocker element (6) for operation of the switch elements (12, 13) of the first function position out as well as one by the rocker element (6) movable driver (7) for operation at least switch element (19, 20) second, first concerning the neutral position covers opposite function position, whereby the driver (7) is such connected kinematically with the rocker element (6) that an obligation taking along of the driver (7) takes place via the rocker element (6) only with a movement of the rocker element (6) to the second function position.
2. Rocker switch according to claim 1, characterised in that of the drivers (7) with a taking along cam (15) in a slide mechanism (14) of the rocker element (6) intervenes and in the neutral position of the switch jack (4) against a on one side working taking along notice (16) of the guiding (14) rests.
3. Rocker switch according to claim 1 or 2, characterised in that of the drivers (7) by the rocker element (6) between the top side or the switch elements (19, 20) of the second function position and the lower surface by the tracer arrangement surrounding bay (2) of stored rocker element (6), formed from the switch elements (12, 13, 19, 20), is held.
4. Rocker switch after one of the claims 1 to 3, characterised in that the rocker element (6) of the switch jack laterally with one concerning the storing that of rocker element (6) eccentrically arranged grasp cam (9) into a switch hollow (22) in-handing arranged is and the first function position by pulling the rocker element (6) at their grasp cam (9) and the second function position through pressures and appropriate obligation taking along of the driver (7) is attainable.
5. Rocker switch after one of the claims 1 to 4, characterised in that of the rocker switches (1) a window lifter switch to the lowering and lifting of the windowpane of a motor vehicle is.
6. Rocker switches after one of the claims 1 to 5, characterised in that those the individual function positions of assigned switch elements (12, 13, 19, 20) switching cathedrals of a switching mat are and the switch jack (4) by the material elasticity of the switching cathedrals into their neutral position are resetable.

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